AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Figs. 1 and 2.

Attachment: Replacement sheet; and
Annotated sheet showing changes.

REMARKS

In response to the Final Office Action mailed December 20, 2007, Applicant respectfully requests entry of this amendment. Claims 1-17 were previously pending in this application. By this amendment, claims 1, 2, 6, 7 and 8 have been amended. No claims have been added or canceled. As a result, claims 1-17 are pending for examination with claims 1, 7 and 8 being independent. No new matter has been added.

Examiner Interview Summary

As a preliminary matter, Applicant's representatives thank Examiner Petranek for the courtesies extended in granting and conducting a telephone interview on March 20, 2008. The substance of the telephone interview is summarized below in responding to the outstanding rejections of the claims.

Objections to the Drawings

The Office Action objected to the drawings under 37 CFR 1.83(a). Also, the Examiner indicated that Fig. 1 should be labeled as "Prior Art." Applicant submits herewith a replacement sheet with Figs. 1 and 2 amended to address the Examiner's concerns.

Rejections Under 35 U.S.C. §103 in view of Yamashita and Trauben

The Office Action rejected claim 8 under 35 U.S.C. §103(a) as being unpatentable over Yamashita, U.S. Patent No. 6,467,083 ("Yamashita"), in view of Trauben, U.S. Patent No. 5,594,864 ("Trauben"). Applicant respectfully disagrees. In addition, without acceding to the appropriateness of the rejection, Applicant has amended independent claim 8 as discussed during the telephone interview to more clearly clarify the distinctions over the cited references.

Claim 8, as amended, recites:

> A method for monitoring a microprocessor executing a sequence of instructions by means of a device integrated to a microprocessor chip, the method comprising:
>
> on each execution of an instruction from the sequence of instructions, generating a digital message of a type corresponding to a type of the executed instruction;
>
> storing each generated digital message in a buffer memory; and
>
> *modifying a state of an output terminal associated with an instruction type* from the sequence of instructions *when a digital message* of a type corresponding to the instruction type *is stored in the buffer memory*, wherein the output terminal associated with the instruction type is from a plurality of output terminals connected to an external analysis tool, with each output terminal from the plurality of output terminals being associated with an instruction type from the sequence of instructions.
>
> (Emphasis added).

Claim 8 has been amended to recite, inter alia, "modifying a state of an output terminal ... when a digital message ... is stored in the buffer memory." During the telephone interview, the Examiner indicated that the amendment appeared to clarify the distinctions with respect to the cited references. The Examiner reserved the right to conduct a further search and to further consider the claims.

On page 4, the Office Action concedes that Yamashita failed to teach modifying a state of one of a plurality of output terminals connected to an external analysis tool and each associated with an instruction type when a digital message corresponding to the instruction type to which said output terminal is associated is stored in the buffer memory. The Office Action then alleges that Trauben discloses this limitation. Specifically, the Office Action points out to col. 8, lines 26-30 and 48-67 and to col. 9, lines 1-7 of Trauben.

The Office Action concedes that Yamashita fails to teach modifying a state of one of a plurality of output terminals ... when a digital message corresponding to the instruction type to which said output terminal is associated is stored in the buffer memory. The Office Action then states that Trauben "discloses modifying a state of one of a plurality of output terminals connected to an external analysis tool" in elements 51 of Fig. 5 and in col. 8, lines 26-30. Further, the Office Action states that Trauben discloses "... each associated with an instruction

type when a digital message corresponding to the instruction type to which said output terminal is associated is stored in the buffer memory" in elements 51 of Fig. 5 and in 8, line 48 – col. 9, line 7.

In the portions cited to in the Office Action, Trauben discusses that the pins of a pin grid array transmit a multiplicity of PIPE signals and provide information on activity within a clock cycle. (Trauben, col. 8, lines 23-28). Trauben describes asserting ten PIPE signals to provide information on internal states of the processor within a clock cycle. However, Trauben does not teach that any of the PIPE signals is asserted **when** a digital message of a type corresponding to a type of an instruction **is stored** in a buffer memory. (Emphasis added). In contrast, claim 8 recites **modifying a state of an output terminal** ... **when** a digital message ... is stored in the buffer memory. (Emphasis added).

In view of the above, claim 8 patentably distinguishes over Yamashita and Trauben, either alone or in combination.

Claim 9 depends from claim 8 and is allowable for at least the same reasons.

Accordingly, withdrawal of the rejection of claims 8 and 9 is respectfully requested.

Rejections Under 35 U.S.C. §103 in view of Yamashita, Trauben, and Edwards

The Office Action rejected claims 1-3, 5-7, 11-14 and 16-17 under 35 U.S.C. §103(a) as being unpatentable over Yamashita, in view of Trauben, in view of Edwards et al., U.S. Patent No. 6, 918, 065 ("Edwards"). Applicant respectfully disagrees. In addition, without acceding to the appropriateness of the rejection, Applicant has amended independent claims 1 and 7 to clarify the distinctions over the cited references, as discussed during the telephone interview.

Independent Claim 1

Claim 1, as amended, recites:

> A monitoring device integrated on a chip of a microprocessor executing a sequence of instructions, comprising:
>
> a message calculation means for, on each execution of an instruction from among a plurality of instructions of predetermined instruction types, generating a digital message corresponding to the executed instruction, wherein a type of the digital message corresponds to a type of the executed instruction;

> a buffer memory for storing each generated digital message; and
> a plurality of output terminals connected to an external analysis tool, each output terminal being associated with an instruction type from among the instruction types, and *the message calculation means modifying a state of the output terminal-when a digital message* of a type corresponding to the instruction type *is stored in the buffer memory,* so that the external analysis tool stores a time when the state of the output terminal is modified.
> (Emphasis added).

Claim 1, as amended, recites "the message calculation means modifying a state of the output terminal when a digital message of a type corresponding to the instruction type is stored in the buffer memory." As discussed during the telephone interview, neither Yamashita nor Trauben appear to teach or suggest this limitation.

Further, on page 6, the Office Action concedes that Yamashita and Trauben fail to teach the external analysis tool stores a time when the state of the output terminal is modified. The Office Action alleges that Edwards discloses the external analysis tool stores a time when the state of the output terminal is modified in element 708 of Fig. 7 and in col. 12, lines 29-35. Edwards describes a timestamp 708 that may be an optional field if circuit 103 is configured to include timestamp information within trace messages. (Edwards, col. 12, lines 29-31). Edwards discusses that trace information is received by debug circuit 103, where it is processed and stored or transmitted to an external system 106. (Edwards, col. 6, lines 13-15). Nowhere does Edwards teach or suggest that the external system stores a time when the state of the output terminal is modified. Therefore, Edwards does not teach or suggest that "the external analysis tool stores a time when the state of the output terminal is modified," as recited in claim 1.

In view of the above, claim 1 patentably distinguishes over Yamashita, Trauben, and Edwards, either alone or in combination.

Claims 2-6 depend from claim 1 and are allowable for at least the same reasons.

Accordingly, withdrawal of the rejection of claims 1-6 is respectfully requested.

Independent Claim 7

Claim 7, as amended, recites:

> An integrated circuit comprising:

> a microprocessor for executing a sequence of instructions; and
>
> a monitoring device for monitoring the execution of the sequence of instructions, the monitoring device comprising:
>
> a message calculation means for generating digital messages, wherein a type of each digital message corresponds to a predetermined type of an instruction from a plurality of predetermined instruction types, and wherein the digital message is generated on each execution of the instruction of the predetermined type;
>
> a buffer memory for storing the generated digital messages; and
>
> a plurality of output terminals connected to an external analysis tool, wherein an output terminal from the plurality of output terminals is associated with an instruction type, and wherein *the message calculation means modifies a state of the output terminal when a digital message* of a type corresponding to the instruction type *is stored in the buffer memory,* so that the external analysis tool stores a time when the state of the output terminal was modified.
>
> (Emphasis added).

Claim 7, as amended, recites that "the message calculation means modifies a state of the output terminal when a digital message of a type corresponding to the instruction type is stored in the buffer memory." As discussed during the telephone interview, neither Yamashita nor Trauben appear to teach or suggest this limitation.

On page 6, the Office Action concedes that Yamashita and Trauben fail to teach the external analysis tool stores a time when the state of the output terminal is modified. The Office Action alleges that Edwards discloses the external analysis tool stores a time when the state of the output terminal is modified in element 708 of Fig. 7 and in col. 12, lines 29-35. As discussed above, Edwards does not teach or suggest that "the external analysis tool stores a time when the state of the output terminal is modified," as recited in claim 7.

In view of the above, claim 7 patentably distinguishes over Yamashita, Trauben, and Edwards, either alone or in combination.

Claims 10-17 depend from claim 7 and are allowable for at least the same reasons.

Accordingly, withdrawal of the rejection of claims 7 and 10-17 is respectfully requested.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Dated: March 20, 2008

Respectfully submitted,

By: _____

James H. Morris, Reg. No. 34,681
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
Telephone: (617) 646-8000

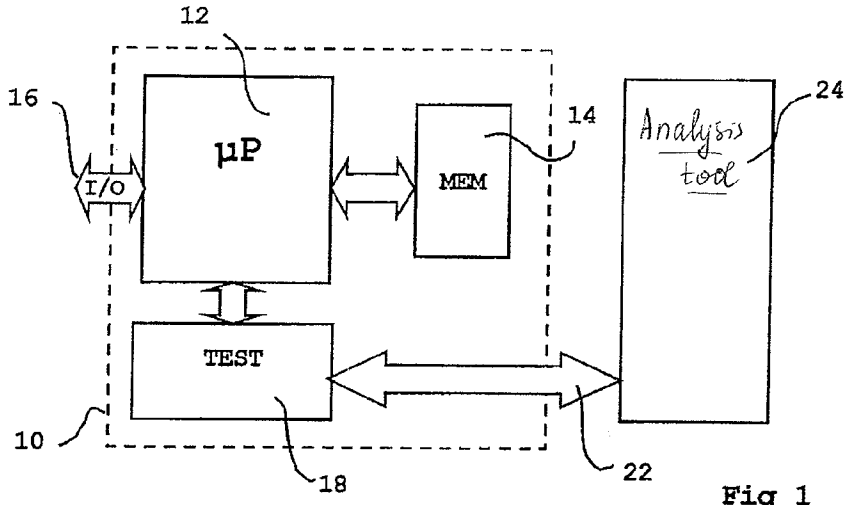

Fig 1
(Prior Art)

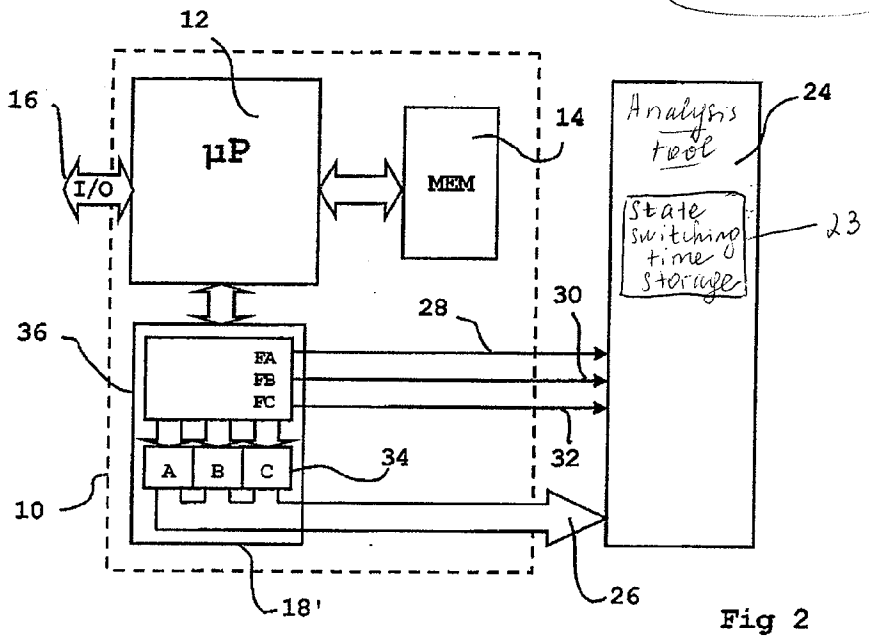

Fig 2